

## ABSTRACT

In the method and system for non-contact measurements of microwave capacitance of test structures patterned on wafers used for production of modern integrated circuits, a near-field balanced two-conductor probe is brought into close proximity to a test structure, and the resonant frequency of the probe for the test structure is measured. The probe is then positioned at the same distance from the uniform metallic pad, and the resonance frequency of the probe for the uniform metallic pad is measured. A shear force distance control mechanism maintains the distance between the tip of the probe and the metallic pad equal to the distance between the tip of the probe and the test structure. The microwave capacitance of the test structure is then calculated in accordance with a predefined formula. The obtained microwave capacitance may be further used for determining possible defects of the test structure.